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ABSTRACT

The purposes of this study are to document the success of the Achievement Goals Program (AGP) in raising student achievement in San Diego Unified School District's minority-isolated schools and to provide recommendations for curriculum development and teacher training based on that success. Reports on the results of the Comprehensive Tests of Basic Skills (CTBS) were reviewed from 1975 through 1985 for fifth grades, the only elementary grade level tested districtwide. Mean percentiles for Total Reading, Total Language and Total Mathematics for each school were determined, transformed into scaled scores, and used to calculate weighted means. Time series designs using unit replications were used to determine the effect of the intervention of AGP in each content area. California Assessment Program data were used to examine AGP effects on achievement. Data from the district's Pupil Ethnic Census Reports addressed the possibility of a "history effect" in the time series design. School effectiveness factors were compared to the AGP instructional model; 11 of the 16 factors were found to be systematically incorporated. This finding shows that school effectiveness factors can be systematically written into curricula and materials used in schools. (PN)

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A LONGITUDINAL STUDY OF SYSTEMATIC EFFORTS TO RAISE STANDARDIZED ACHIEVEMENT TEST SCORES USING FACTORS FROM SCHOOL EFFECTIVENESS RESEARCH

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Presented At

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A LONGITUDINAL STUDY OF SYSTEMATIC EFFORTS TO RAISE STANDARDIZED ACHIEVEMENT TEST SCORES USING FACTORS FROM SCHOOL EFFECTIVENESS RESEARCH

The San Diego Unified School District has operated under a court ordered desegregation plan since 1977. The plan has called for voluntary participation by the community, although the threat of the possibility of forced bussing has been present. Twenty-three schools were identified by the Court as being isolated, each school having 80% or more minority enrollment. There are eighteen elementary schools, three junior high schools, and two senior high schools which are subject to the court order.

In the spring of 1980 the judge in the case, Louis M. Welsh (now retired), expressed great dissatisfaction with the progress being made by the district in desegregating those schools. He came to believe that the long term solution to desegregation lay in improving childrens' academic achievement in basic skills. Test scores at the minority-isolated schools were consistently among the poorest in the district, and the judge decided that a better quality education would improve the economic future of those children. With a better education they would qualify for better jobs, earn more money, and consequently have more freedom of choice.

As a result, the court order for 1980 included a mandate that the district mount a program to raise achievement. That section of the order read as follows:

> Implement a course or courses of study in all minority-isolated schools which will result, by the dates indicated in the table below, in 50% of the students in the

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isolated schools achieving at or above the national norm on the Comprehensive Tests of Basic Skills (CTBS) in reading, mathematics, and language.

Grade Level	1982	1983	1984	1985	CTBS Level
K	X				A
1		X			B
2		X			C
3 & 4			X		1
5 & 6			X		2
7, 8 & 9				X	3
10 & 11				X	4

The district had anticipated this order for a few months prior to its being issued, and began to conceptualize a program based on the latest findings from research. The plan which was ultimately agreed to was called the Achievement Goals Program (AGP) and integrated the following four elements found in the research literature into a teaching and learning model:

1. Mastery Learning
2. Teacher-Directed Instruction
3. Elimination of Classroom Distractions and Interruptions
4. Time on Task

In addition to the elements listed above, the overall program which was developed included a vigorous attendance policy, a homework policy, and the support of an AGP resource teacher at each site. At that time it was generally conceded that a program developed on these elements held promise for raising the level of achievement in the isolated schools, but that it would be an enormous undertaking to develop, field test, revise, implement, and evaluate.

Purpose and Methodology of the Study

The purposes of this study are to document the success of the Achievement Goals Program (AGP) in raising student achievement, and to provide recommendations base on that success which are

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considered important for curriculum development and teacher training.

To accomplish these purposes, reports on the results of the Comprehensive Tests of Basic Skills (CTBS) were reviewed from 1975 through 1985 for fifth grades, the only elementary grade level tested districtwide. Mean percentiles for Total Reading, Total Language, and Total Mathematics for each of the sixteen isolated schools having fifth grades were determined, transformed into scaled scores, and used to calculate weighted means. In this manner time series designs using unit replications were used to determine the effect of the intervention of AGP in each content area. These designs are diagrammed as follows:

Time Series Design For Reading and Mathematics

O	O	O	O	O	O	X	O	X	O	X	O	X	O	X	O
75	76	77	78	79	80		81		82		83		84		85

Time Series Design For Language

O	O	O	O	O	O	O	O	X	O	X	O	X	O	
75	76	77	78	79	80	81	82		83		84		85	

Additionally, since the minority-isolated schools use the CTBS at all grade levels each year, that information was gathered starting with 1980 and is reported using the court's statistic of "percent of children at or above the national norm." These data contain only one baseline year, but follow the progress of AGP for five years.

In order to examine the effects of AGP on achievement using another standardized measure, data from the California Assessment Program (CAP) were gathered. A new CAP test was implemented in 1980 and thus again only one baseline year is provided. Since the

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CAP test is re-normed each year, an indication of progress was determined by calculating the differences between the district averages and the weighted means for the isolated schools. As that difference became smaller, progress was inferred.

Statistical analyses of time series designs can be quite complicated if it is necessary to go beyond basic descriptive statements. In this study it was not considered necessary to employ inferential statistics due to the size of the effects found.

The most serious threat to the internal validity of studies using time series designs is the possibility of a "history effect." To address this concern, data from the district's Pupil Ethnic Census Reports from 1975 through 1985 were gathered and are reported in this study. Also, the California Assessment Program supplies data on socioeconomic status, percent of Aid to Families with Dependent Children, and percent of Limited English Proficient and Non-English Proficient (LEP/NEP) children. These data have also been summarized from 1979 through 1985. Using all of this demographic information one can make a judgment as to the stability of the target population during the period of the study.

The Achievement Goals Program Instructional Model

The teaching model which the San Diego Unified School District adopted for AGP schools called for the teachers to use the following procedures in their instruction (see Figure I):

1. Teach an instructional unit to a group of pupils over approximately a ten day period. In reading pupils are

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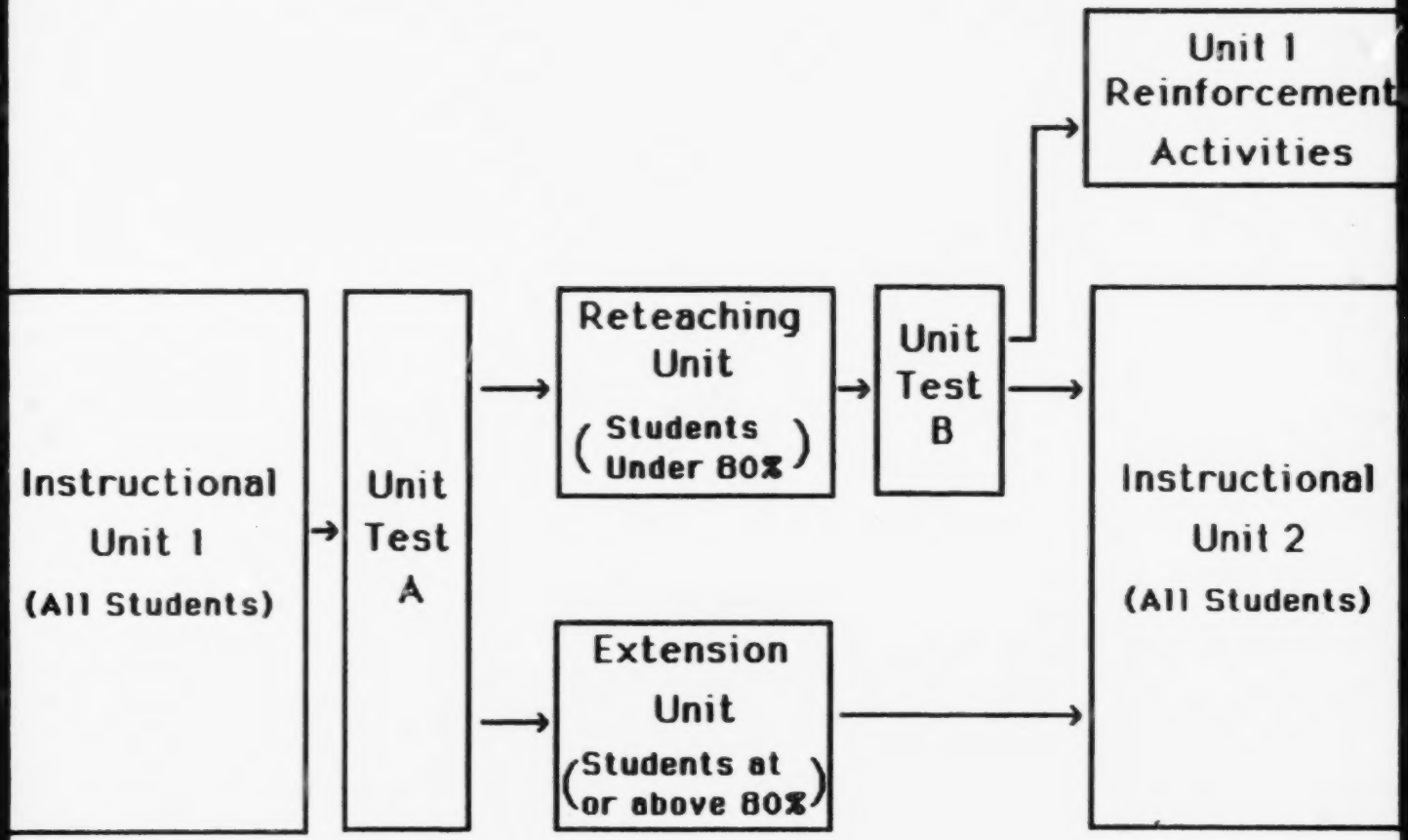
Figure I

The AGP Instructional Model


Unit 1 Reinforcement Activities
Instructional Unit 1 (All Students)
Unit Test A
Reteaching Unit (Students Under 80%)
Unit Test B
Extension Unit (Students at or above 80%)
Instructional Unit 2 (All Students)

7

placed into three groups, in language one group, and in mathematics they are placed into two groups.

2. Administer Unit Test A, normally on about the eleventh day. Those students passing Unit Test A at the 80% mastery level spend the next one to three days on enrichment activities in an Extension Unit. Those not passing Unit Test A at the 80% mastery level are placed in a Reteaching Unit for one to three days.

3. Teach the Extension Unit and the Reteaching Unit (if needed) for one to three days.

4. Administer Unit Test B, a parallel form of Unit Test A, to those students in the Reteaching Unit. Those still not passing Unit Test B (if any) are placed in Reinforcement activities during another part of the school day.

5. All students come back together in their original groups to begin work on the next instructional unit.

6. At the end of every three units of instruction a Cumulative Test is administered to ensure retention over all units completed and to provide practice questions in a CTBS format. The mathematics cumulative tests are criterion referenced while the cumulative tests in reading and language are norm referenced. Figure II illustrates the sequence of instruction and tests leading to the CTBS near the end of the school year.

Each student received thirty minutes of teacher-directed instruction each day. As a result, ninety minutes each day were devoted to reading, thirty to language, and sixty to mathematics. This was a deliberate decision by the Board of Education and its administration to enhance the depressed scores in basic skills at these minority-isolated schools. Time spent in other content areas such as social studies, art, science, etc. were consequently reduced.

The mastery level for AGP unit tests was uniformly set at 80% correct and, typically, well over 90% of the students mastered the objectives on Unit Test A. Most students needing the Reteaching Unit demonstrated their mastery on Unit Test B and very few required the Reinforcement activities.

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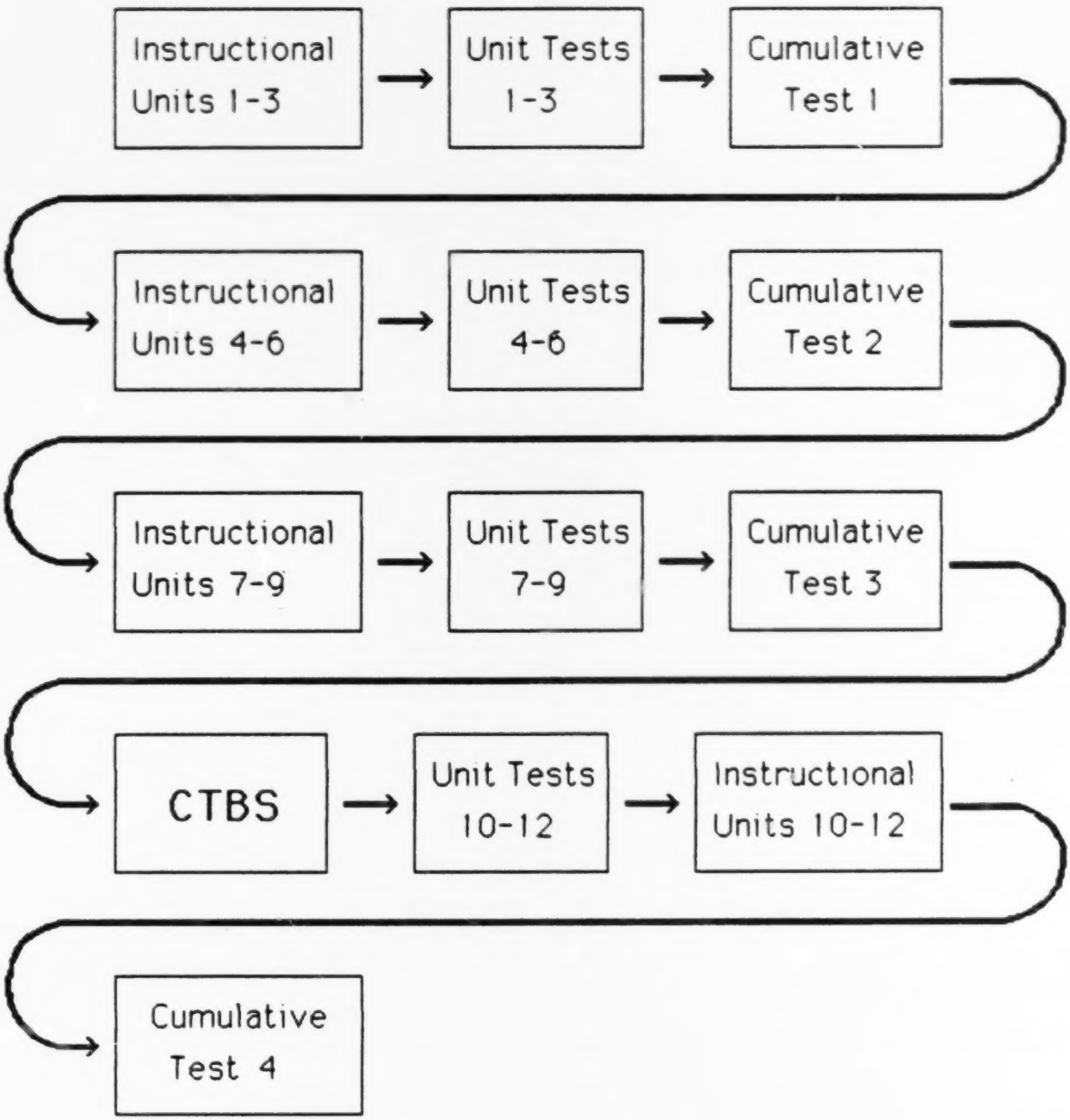
Figure II

AGP Sequence of Instruction and Tests



Relation of AGP to School Effectiveness Research

Recent work now allows the school effectiveness literature to be viewed as a conceptual framework composed of a number of factors or variables. The California State Department of Education published such a conceptual framework in its July 5, 1983 newsletter, The New California Schools, which consisted of the following sixteen variables.

1. Academic Focus. The primary goal of schools should be academic ones that focus on student learning and achievement. The academic focus should be reflected in the school's mission, goals, and objectives; as well as in student achievement.

2. Rigorous Content. In effective schools, students are exposed to a broad-based academic curriculum. The content of these courses is based on and consistent with professional standards. The content is clearly defined by specific objectives, and readily available in written form for students, parents, and faculty.

3. Coordinated Curriculum. Besides clearly delineated sets of skills and objectives for all subject areas, effective schools also ensure that curriculum materials, instructional practices, and assessment instruments are coordinated with those objectives. This is sometimes referred to as a "tightly coupled" curriculum.

4. Maximum Use of Time. In effective schools, more time is provided for learning, students are required to do more work, and they practice at a success rate that insures that learning occurs. Time needs to be viewed as a scarce resource, and efforts need to be devoted to determine both how more time can be obtained for instructional purposes and how to better use that which is already available.

5. Regular Homework. Regular homework is based on objectives, provides independent practice for the next class session, does not encroach on classroom instructional time, and is consistently monitored, collected, checked, returned and used in reporting pupil progress.

6. Teacher-Directed Instruction. Classrooms that are effective in promoting student achievement are often characterized by a number of teaching strategies which have become known as direct instruction. The most important characteristic of this type of instruction is that the teacher spends much more time teaching content to students before they begin to work on their own. Instruction is teacher-directed.

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7. A Variety of Teaching Strategies. Effective teachers generally have command of a relatively wide variety of teaching strategies including whole group, small group, and individual instruction. Teaching strategies are adapted to fit the diagnosed needs of students, and altered to ensure maximum student learning and success.

8. Regular Assessment. One of the better known effectiveness variables is frequent monitoring of student progress. In effective teaching, tests are taken seriously, whether they are weekly quizzes or standardized tests. Systematic procedures are used to assess the progress of students and to review test data. Results are used to guide instruction, assess curriculum, develop goals, and plan professional growth activities.

9. Instructional Leadership. A critical factor that has been shown to be regularly associated with effectiveness is strong administrative leadership, including the framing and communication of program goals, establishment of high expectations, coordination of curriculum, evaluation of instruction, promotion of professional development, and provision of resources.

10. Structured Staff Development.: The most effective staff development programs are those which are based on school goals, involve the entire staff in planning and delivery, and have the support of the administrative leadership.

11. A Safe and Orderly Environment. Effective schools maintain an environment where students and staff are free from danger to themselves or damage to their property, and the physical plant is clean and well-maintained.

12. High Standards and Expectations. A consistent characteristic of effective schools is the existence of high academic standards and expectations for students. High academic standards are predicated on the belief that all students can learn. They are reflected in everything from academic requirements, to each staff member holding him/herself accountable for student learning.

13. Opportunities For Student Responsibility and Involvement. This factor refers to the number and quality of the chances students have to play an important role, other than that of scholar, to practice leadership behavior, form close ties to the school, identify with appropriate role models, become involved in extracurricular activities, and participate in governance activities and community service.

14. Widespread Recognition. Well-planned and conscientiously implemented programs of student recognition are associated with effective schools, especially in the area of academic excellence. Awards are given to a high percentage of students.

15. Sense of Community. Sense of community in effective schools is a combination of cohesion and support among faculty and

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students and between these two groups. Faculty participate in important organizational decisions, there is a strong sense of collegiality, and there is mutual support outside of school hours.

16. Home-School Cooperation and Support. Effective schools are often characterized by an active degree of support from parents for school goals, disciplinary policies, home learning experiences, participation in school activities, work in classrooms, involvement in school governance, etc.

When these factors were compared to the AGP instructional model, the following factors were found to have been systematically included:

1. Academic Focus
2. Rigorous Content
3. Coordinated Curriculum
4. Maximum Use of Time
5. Regular Homework
6. Teacher-Directed Instruction
7. A Variety of Teaching Strategies
8. Regular Assessment
9. Instructional Leadership
10. Structured Staff Development
12. High Standards and Expectations

AGP is believed to have systematically incorporated at least the above eleven variables, with schools making individual efforts of an undertermined nature on the remaining five.

Results From The Comprehensive Tests of Basic Skills (CTBS)

The San Diego Unified School District administers the CTBS to all elementary students at the fifth grade only. The minority-isolated schools, however, are tested at all grade levels each year. Figure III presents the mean percentiles for CTBS, Form S, Total Reading scores for fifth grades at both the minority-isolated schools and all district elementary schools from 1975 to 1985. Note that after a relatively flat baseline from 1975 to 1980, there was a sharp rise of about ten percentile points when AGP reading was implemented in the fall of 1980. From 1980 to

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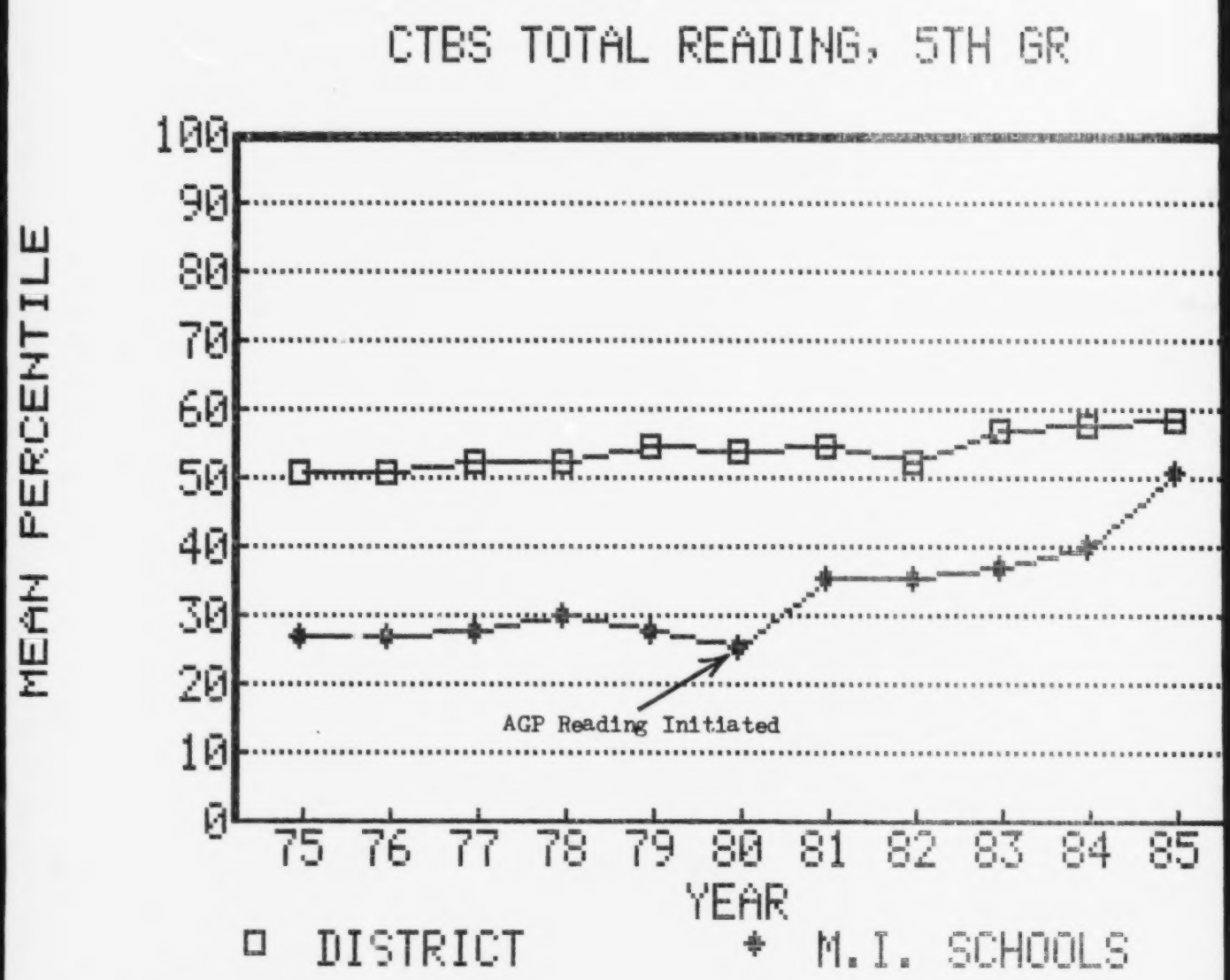
Figure III


CTBS TOTAL READING, 5TH GR
MEAN PERCENTILE
100
90
80
70
60
50
40
30
20
10
0
AGP Reading Initiated
75 76 77 78 79 80 81 82 83 84 85
YEAR
DISTRICT
M.I. SCHOOLS

1985 an overall increase of 25 percentile points was achieved. At the same time there was a more gradual but continual rise over the decade in district reading scores of eight percentile points. The actual scores for each year are presented in Table I.

Table I
CTBS, Form S, Mean Percentiles In Total Reading For Fifth Grades

Year	District	Isolated Schools
1975	51	27
1976	51	27
1977	53	28
1978	53	30
1979	55	28
1980	54	26
1981	55	36
1982	53	36
1983	57	37
1984	58	40
1985	59	51

Using the court's statistic of "percent of children at or above the national norm," a similar pattern is seen at other grade levels at the minority-isolated schools. Table II presents those results. Notice that the primary grades did particularly well, and the court goal of 50% of the children at or above the national norm was attained in grades K through three. Intermediate grades did less well but still made substantial progress.

Figure IV presents a line graph of the mean percentiles for CTBS, Form S, Total Language scores for fifth grades at the minority-isolated schools and districtwide. These graphs present an almost classic picture of what can be seen using a time series design when the intervention being investigated is working as planned. The baseline from 1975 to 1980 is nearly flat and begins to rise in 1981 and 1982. The language program was implemented

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Table II
Percent Of Children At Or Above The National Norm
For CTBS, Form S, Total Reading

Grade Level	Percent of Children At or Above the National Norm in 1980	Change In Percent of Children At or Above the National Norm Since 1980	Percent of Children At or Above the National Norm in 1985
K	50.2(1)*	+25.7	75.9*
1	50.5*	+14.4	64.9*
2	33.5	+28.8	62.3*
3	33.7	+25.3	59.0*
4	23.0	+24.1	47.1
5	23.9	+23.3	47.2
6	27.4	+18.4	45.8

(1) Figure was not available for 1980; value for 1981 was substituted.
* Court Goal of 50% or more attained.

districtwide in 1982, and it is believed that the earlier rises at the minority-isolated schools were due to a carry over of skills developed in the AGP reading program. From 1982 onward there was a steep gain in language achievement scores. Table III presents the actual scores obtained.

Table III
CTBS, Form S, Mean Percentiles In
Total Language For Fifth Grades

Year	District	Isolated Schools
1975	46	26
1976	48	25
1977	48	26
1978	48	25
1979	48	26
1980	49	26
1981	50	36
1982	51	37
1983	65	44
1984	69	53
1985	70	64

When all grade levels were reviewed using the court statistic the same pattern of improvement was found as that for the fifth grade. Table IV presents those results.

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Figure IV

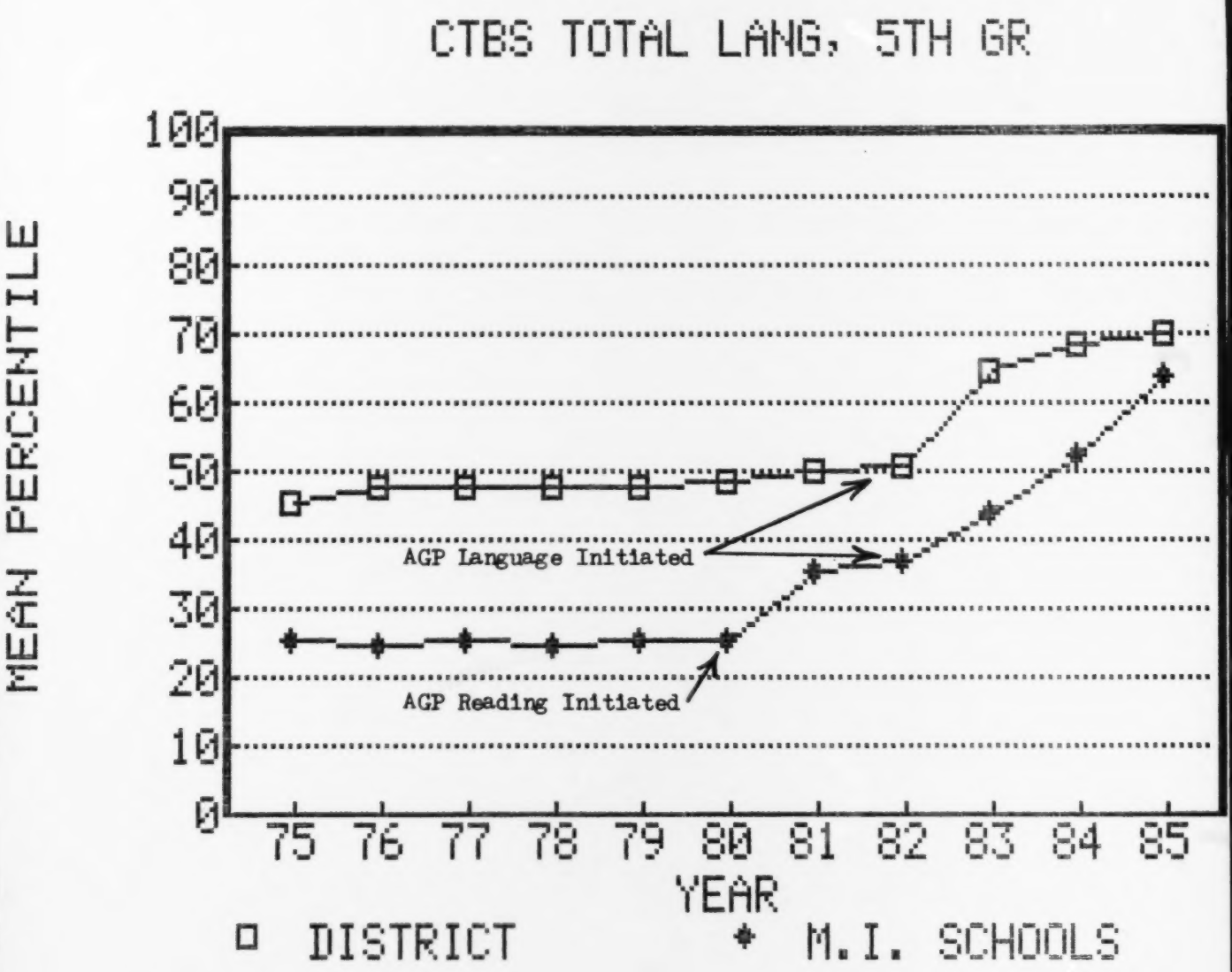
CTBS TOTAL LANG, 5TH GR
MEAN PERCENTILE
100
90
80
70
60
50
40
30
20
10
0
AGP Language Initiated
AGP Reading Initiated
75 76 77 78 79 80 81 82 83 84 85
YEAR
DISTRICT
M.I. SCHOOLS

Table IV
Percent Of Children At Or Above The National Norm
For CTBS, Form S, Total Language

Grade Level	Percent of Children At or Above the National Norm in 1981(1)	Change In Percent of Children At or Above the National Norm Since 1980	Percent of Children At or Above the National Norm in 1985
K	45.6	NA	No Test
1	42.0	+23.2	65.2*
2	38.1	+28.8	66.9*
3	35.8	+32.4	68.2*
4	35.7	+29.4	65.1*
5	31.2	+31.2	62.4*
6	38.9	+24.8	63.7*

(1) Due to small numbers tested on language in 1980, the Court has agreed to use 1981 as the baseline.
* Court Goal of 50% or more attained.

Performance in mathematics also showed dramatic improvement as displayed in Figure V. The baseline data showed some growth from 1975 to 1980 when AGP was implemented. A new textbook adoption occurred in 1978 which may account for some of the early growth, along with the introduction of a more structured curriculum in mathematics. However, there was a dramatic rise in mean percentile scores after AGP was implemented. The actual scores obtained for this period are presented in Table V.

Table V
CTBS, Form S, Mean Percentiles In
Total Mathematics For Fifth Grades

Year	District	Isolated Schools
1975	49	29
1976	49	29
1977	50	32
1978	50	33
1979	55	33
1980	54	37
1981	56	45
1982	57	51
1983	62	51
1984	65	52
1985	65	58

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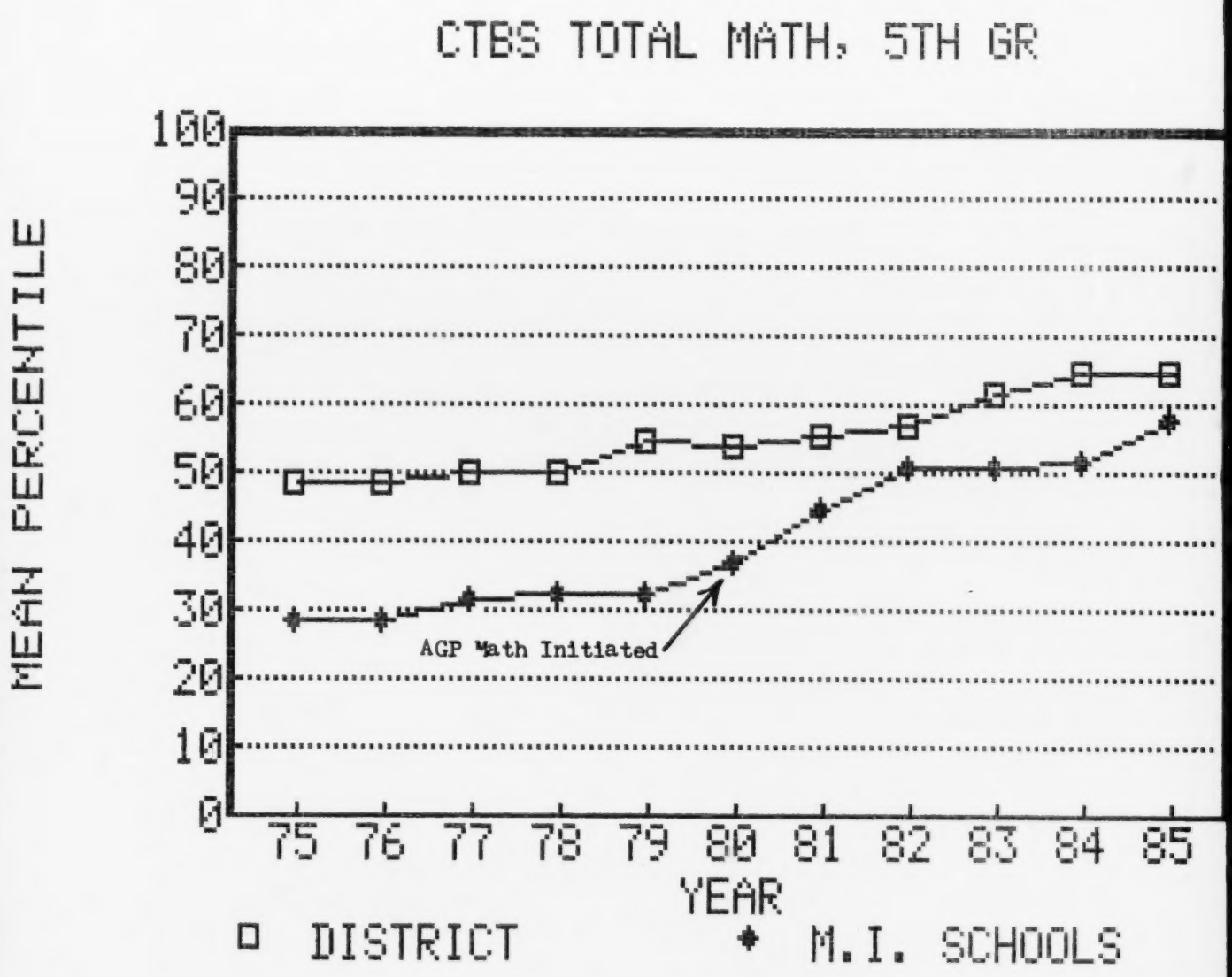
Figure V


CTBS TOTAL MATH, 5TH GR
MEAN PERCENTILE
100
90
80
70
60
50
40
30
20
10
0
AGP Math Initiated
75 76 77 78 79 80 81 82 83 84 85
YEAR
DISTRICT
M.I. SCHOOLS

As with reading and language, a similar pattern was found at the other elementary grade levels. Table VI presents those results.

Table VI
Percent Of Children At Or Above The National Norm
For CTBS, Form S, Total Mathematics

Grade Level	Percent of Children At or Above the National Norm in 1980	Change In Percent of Children At or Above the National Norm Since 1980	Percent of Children At or Above the National Norm in 1985
K	46.7	+32.3	79.0*
1	63.9*	-0.4	63.5*
2	48.4	+16.8	65.2*
3	38.4	+26.2	64.4*
4	28.3	+34.1	62.3*
5	33.2	+27.1	60.3*
6	31.3	+40.3	71.6*

* Court Goal of 50% or more attained.

Results From The California Assessment Program (CAP)

While the AGP curriculum is most "closely coupled" to the CTBS, another important performance review of the isolated schools can be accomplished using the California Assessment Program (CAP) tests as a standard. All elementary schools in the state of California are assessed each year at grades three and six by the California Assessment Program (CAP). This program uses matrix sampling at each site, and therefore there are only grade level scores for each school and there are no individual scores on children. CAP scores are available for Reading, Written Language, and Mathematics. New tests were used in 1980 (the baseline year), and thus with the exception of third grade reading no earlier data in the baseline can be reported. In the case of third grade reading, the state reported two prior years in terms of what the scaled scores would have been had children taken the new test. This data has been included here.

Table VII presents the CAP results for third and sixth grade reading for both the district and the minority-isolated schools. It will be observed that for third grade there was variation in the weighted means for the three available baseline years (1978-1980). At least part of this may be due to the projection of prior scores before use of a new test in 1980. At sixth grade, data for only one baseline year were available (1980).

Note that there was a substantial and continual rise in mean scaled scores at both third and sixth grades from 1980 to 1985 for the minority-isolated schools. District scores at third grade rose 34 points while the isolated schools gained 58 points. At sixth grade there was a change of 11 points in district scores over the six year period, but the isolated schools gained 45 points. The end result was that the differences in mean scores between the isolated schools and the district became much smaller over the period. At third grade the difference dropped from 61 to 37 points, and at sixth grade from 61 to 27 points.

Table VII
CAP Test Results For Reading

	Grade Three			Grade Six		
Year	District	Isolated Schools	Difference	District	Isolated Schools	Difference
1978	247	186	61	---	---	--
1979	245	175	70	---	---	--
1980	258	198	60	249	188	61
1981	260	212	48	256	205	51
1982	263	220	43	259	204	55
1983	268	238	30	256	212	44
1984	271	240	31	249	212	37
1985	281	244	37	260	233	27

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Results for the third and sixth grade CAP Language Test provide a similar picture to that just presented for reading. These results are shown in Table VIII.

Table VIII
CAP Test Results For Language

	Grade Three			Grade Six		
Year	District	Isolated Schools	Difference	District	Isolated Schools	Difference
1980	255	202	53	247	202	45
1981	258	212	46	256	215	41
1982	267	225	42	262	220	42
1983	274	245	29	269	240	29
1984	278	248	30	272	243	29
1985	290	258	32	282	260	22

CAP language scores showed a very encouraging pattern of growth, especially at the isolated schools. Note that while the third grade district CAP scores for language improved 35 points over the period, the isolated schools improved 56 points, and the difference was considerably narrowed. At sixth grade the district improved 35 points during the same period in which the isolated schools improved 58 points.

As was mentioned in the discussion of the CTBS results, AGP language was implemented in 1982; and it is believed that the growth prior to that time at the isolated schools is due, in some measure, to a "spin-off" of skills from the AGP reading program.

CAP results for grade three and six mathematics once again present a picture of good gains in achievement. These data are presented in Table IX.

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Gains have been made in mathematics at both grades three and six. Third grade district scores improved 30 points while the isolated schools gained 49 points; and at the sixth grade the district gained 21 points to the isolated schools' 47 points.

Table IX
CAP Test Results For Mathematics

	Grade Three			Grade Six		
Year	District	Isolated Schools	Difference	District	Isolated Schools	Difference
1980	257	205	52	255	205	50
1981	262	230	32	264	232	32
1982	265	234	31	265	228	37
1983	270	248	22	269	238	31
1984	279	252	27	268	242	26
1985	287	254	33	276	252	24

While the above table illustrates good overall growth, there is a slight dip in the sixth grade scores for the isolated schools in 1982 which has no ready explanation. Such a phenomena was not seen on the CTBS results for the isolated schools.

It is believed that these CAP results demonstrate that excellent gains have been made in achievement at the isolated schools. Further, these gains appear to be consistent with the results reported for the CTBS.

The Possibility of a "History Effect"

In a time series design, the most serious threat to internal validity is the possibility of a history effect. For example, it could be hypothesized that substantial gains in achievement were made simply as a result of the judge issuing an order to do so. The level of concern (even fear) may have pushed teachers and

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principals to put forth superhuman efforts which caused the gains. It is not believed that such a phenomena occurred, and the CTBS results reported for language can provide a satisfactory reply. The language program was implemented districtwide in 1982, and both the scores for the minority-isolated schools and the district schools experienced a marked rise even though only the isolated schools were subject to the judge's order.

Another of the hypotheses which could be raised to provide an alternative explanation to the gains in achievement which this study has reported concerns the district's efforts to integrate the isolated schools. One could postulate that the gains in achievement were due solely to the change in the school population due to the integration efforts. For this reason, data from the district's Pupil Ethnic Census yearly reports for the decade 1975 to 1985 are included. Figure VI displays a line graph of this data for the percent of hispanic, white, black, and asian children enrolled. Table X presents the percent of change in enrollments from 1975 to 1985 and from 1980 to 1985.

Table X
Change In Percents Of Ethnic Enrollments
At The Sixteen AGP Schools

Period	Hispanic	White	Black	Asian	Total
1975-1985	+6.20%	+10.43%	-21.47%	+7.34%	-10.43%
1980-1985	-3.72%	+4.16%	-4.35%	+4.13%	-4.16%

Table XI provides the actual enrollments by ethnic group and the totals. While the minority population at the isolated elementary schools dropped somewhat over 10% during the decade, it decreased a little under 4% from 1980 when AGP was first implemented. Since percents give one a relative picture, it is

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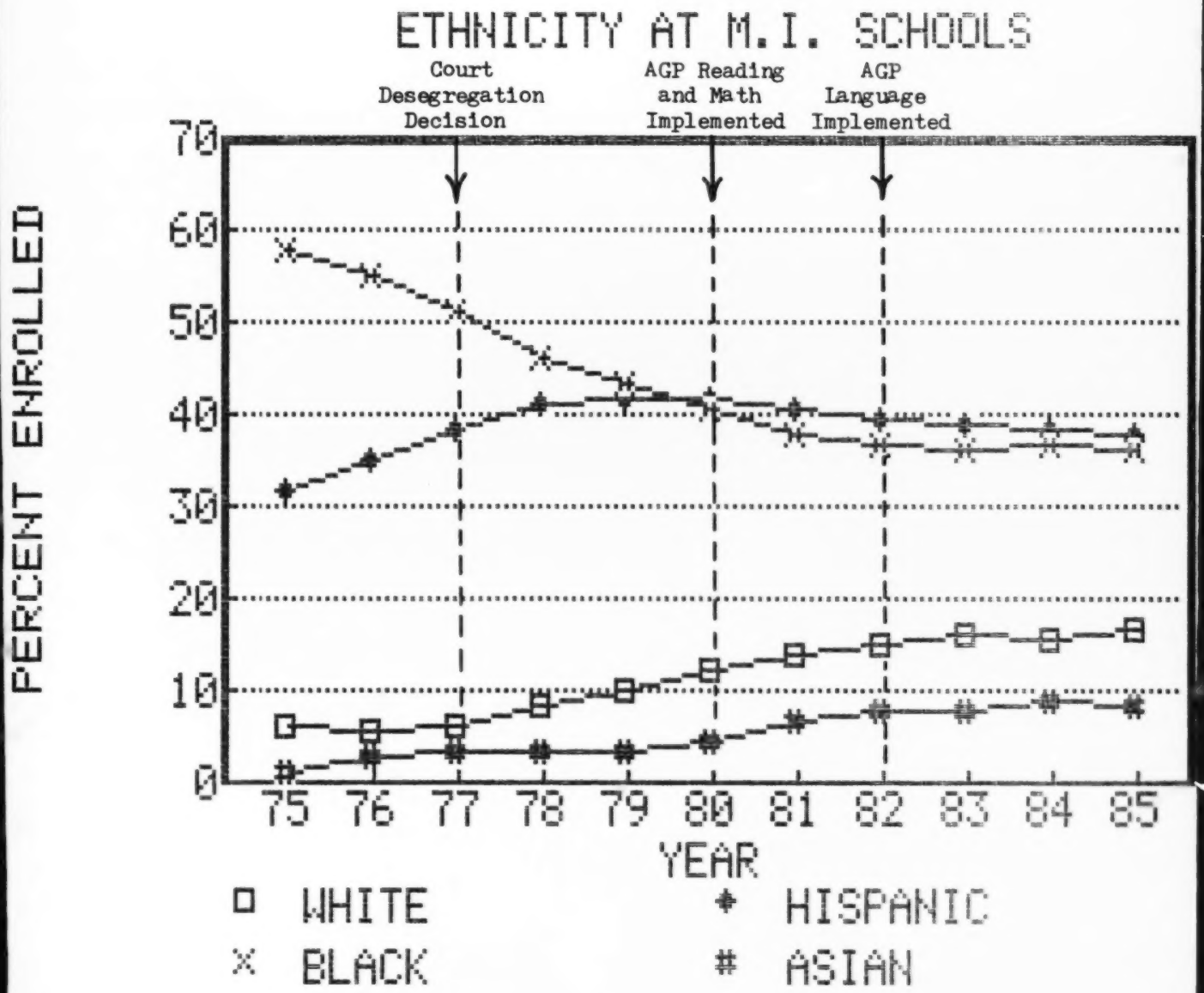

ETHNICITY AT M.I. SCHOOLS
Court Desegregation Decision
AGP Reading and Math Implemented
AGP Language Implemented
PERCENT ENROLLED
70
60
50
40
30
20
10
0
75 76 77 78 79 80 81 82 83 84 85
YEAR
WHITE
HISPANIC
BLACK
ASIAN

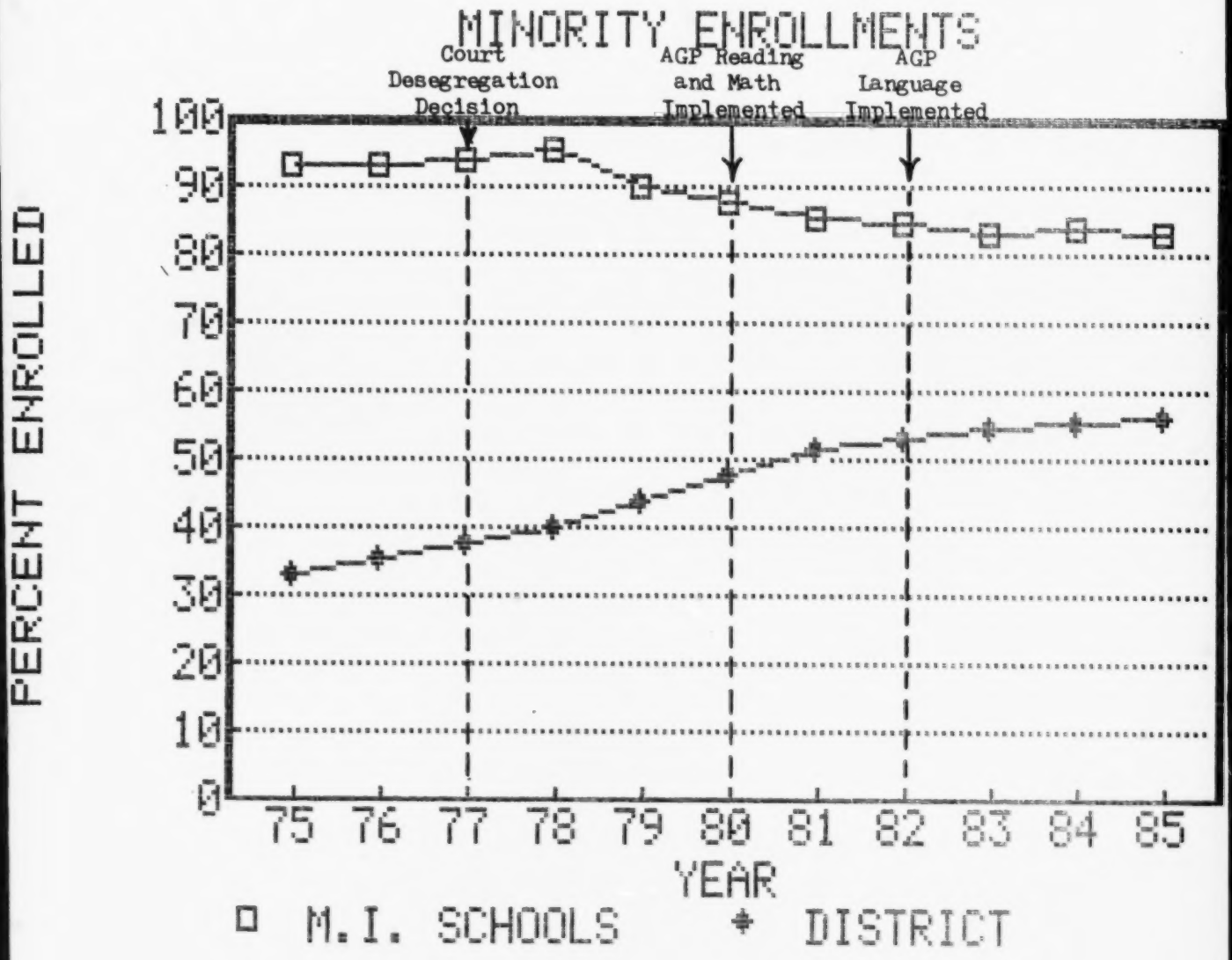
also important to look at the actual numbers. During this period from 1980 school enrollments have been increasing, and minority enrollments actually grew by 1,384 children, while white enrollents grew by 761 children.

Table XI
Total Enrollments By Ethnicity
For The Sixteen Minority-Isolated Schools
Having Fifth Grades

Year	Hispanic	White	Black	Asian	Other Non-White	Total
1975	2,810	556	5,083	120	225	8,794
1976	3,262	519	5,096	296	26	9,199
1977	3,490	557	4,651	337	24	9,059
1978	3,843	823	4,332	314	20	9,332
1979	3,950	994	4,111	341	35	9,431
1980	4,040	1,215	3,925	441	28	9,649
1981	4,101	1,427	3,800	691	17	10,036
1982	4,108	1,549	3,818	834	3	10,312
1983	4,186	1,741	3,894	877	9	10,707
1984	4,362	1,783	4,161	1,006	8	11,320
1985	4,499	1,976	4,285	1,026	8	11,794

It is not believed that such small overall changes in the ethnicity (or factors often strongly related to ethnicity) of the population at the isolated schools could account for the size of the gains which have been observed in achievement on both the CTBS and CAP. Larger changes in the nature of the school population occurred during the baseline period prior to AGP, and substantial gains in achievement were not observed.

Figure VII presents the percent minority at all district elementary schools, and shows that there has been continuous growth in the minority population districtwide. During the decade there has been an increase of over 23% in the minority population, with the district becoming predominantly minority at the elementary level in 1981. In spite of this trend, the integration program has made some progress in changing the ethnic balance at


MINORITY ENROLLMENTS
Court Desegregation Decision
AGP Reading and Math Implemented
AGP Language Implemented
PERCENT ENROLLED
100
90
80
70
60
50
40
30
20
10
0
75 76 77 78 79 80 81 82 83 84 85
YEAR
M.I. SCHOOLS
DISTRICT

the minority-isolated schools.

An additional source of data on the change in population at the AGP schools is provided by the CAP test. CAP also reports background information on the average socioeconomic index, percent of families receiving aid for dependent children, and percent of LEP/NEP children are reported. The scale used to rate socioeconomic status is as follows:

1. Unknown or unskilled employees (and welfare)
2. Skilled and semiskilled employees
3. Semiprofessionals, clerical, sales workers, technicians, executives, professionals, and managers.

CAP background data for the sixteen minority-isolated schools are reported in Tables XII and XIII.

Table XII
CAP Backgroud Factors For Third Grades
At The Sixteen Minority-Isolated Schools

Year	Average SES	Percent AFDC	Percent LEP/NEP
1979	1.590	38.53	22.64
1980	1.649	34.55	22.02
1981	1.629	34.49	21.60
1982	1.629	31.12	22.95
1983	1.588	33.12	22.14
1984	1.667	33.20	19.49
1985	1.562	33.41	20.96

Table XIII
CAP Backgroud Factors For Sixth Grades
At The Sixteen Minority-Isolated Schools

Year	Average SES	Percent AFDC	Percent LEP/NEP
1979	1.518	37.62	13.43
1980	1.482	35.17	18.28
1981	1.634	34.40	17.11
1982	1.521	31.29	17.20
1983	1.572	33.62	17.77
1984	1.620	34.08	14.91
1985	1.594	34.21	15.86

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While there are minor fluctuations in this data, it is clear that the background factors at the isolated schools have been relatively stable during the time when AGP was implemented.

Conclusions and Implications

In summary, it is believed that the following conclusions can legitimately be drawn from this study:

1. The design of the Achievement Goals Program systematically employed at least eleven of the sixteen variables associated with school effectiveness.

2. The only significant innovation impacting the court identified minority-isolated elementary schools during the period 1980 to 1985 was AGP, and during that same period great gains were made in achievement in language and mathematics, and good gains were made in reading.

3. Achievement gains have been documented over a six year period by both the CTBS and the CAP.

4. The alternative hypothesis that the school population has changed due to the integration program, does not appear to be an acceptable alternative explanation for the gains in achievement. Only minor changes were seen in Pupil Ethnic Census Report figures, and the CAP background factors appear to be relatively stable.

5. Therefore, it seems reasonable to conclude that AGP successfully implemented a sufficient, "critical mass" of school effectiveness factors which were able to produce the gains in achievement which have been observed.

It is believed that this study serves to validate that "critical mass" of factors from the school effectiveness literature which AGP implemented. This finding is especially important because it shows that such factors can be systematically written into curricula and materials used in schools. It is believed that this knowledge should allow curriculum specialists, and the writers and publishers of textbooks, to furnish a much better product to teachers in the future. With the public demand for "excellence in education", there is perhaps no greater support service which can be provided to classroom teachers than to give

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them the finest materials to work with which can be found.

Such materials could be wasted, however, unless teachers possess the skills needed to successfully employ them. It is essential that training in the knowledge and skills associated with these school effectiveness factors be included in both preservice and inservice programs for student teachers, teachers, and administrators. Additionally, it is crutial that "on the job" assistance be provided in the early years of program implementation.

This is a dynamic time for the community of educators, and it is exciting to note that research is providing some practical, common sense answers to our need for improving student achievement and teacher performance. School effectiveness factors appear to be one of the most promising tools which we can add to our arsenal.

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